

## Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

### Background

Immunization coverage assessment is an important part of a quality immunization program. Immunization coverage assessment serves three main functions:

- i) Identifying populations with low levels of immunization coverage
- ii) Evaluating the delivery of immunization programs
- iii) Informing program planning

The 2007 Immunize BC Strategic Framework for Immunization target for influenza vaccination for health care workers in acute care facilities is 60% coverage. Influenza vaccination coverage for staff of acute care facilities in BC has ranged from 35% to 46% from the 2004/05 to 2011/12 influenza seasons.

A new provincial influenza prevention policy for healthcare workers was announced in BC in August 2012. The policy requires health care workers in all health authorities to be vaccinated against influenza or wear a surgical mask while in patient care areas during the influenza season (1 December to 30 April inclusive). The policy covers all health authority staff who work in patient care areas: unionized and excluded staff, volunteers, paramedics, students, contractors, and physicians. The policy was widely communicated, it received extensive provincial and national media attention and its implementation was accompanied by novel strategies such as the use of peer immunizers. Staff reporting of their influenza immunization was enabled through a variety of means including email, telephone, and directly from clinics offering on-site immunization. The policy originally included disciplinary measures for staff who did not comply, including loss of privileges and termination of employment, but all disciplinary measures were removed from the policy on 30 November 2012.

### Objective

- i) To quantify the proportion of staff in acute care facilities in British Columbia who were vaccinated against influenza during the 2012/13 influenza season.

### Methods

Acute care facilities were defined as non-profit institutions that are designated as a hospital by the Minister and are operated primarily for the reception and treatment of persons:

- suffering from the acute phase of illness or disability;
- convalescing from or being rehabilitated after acute illness or injury; or
- requiring extended care at a higher level than that generally provided in a private hospital.

A list of the acute care facilities included in the 2011/12 influenza season's vaccination coverage statistics was sent to each health authority. Acute care facilities that closed during the previous year were removed and new facilities were added to the list.

There were two sources of influenza vaccination coverage data: an anonymised individual healthcare worker level dataset from the electronic Workplace Health Indicator Tracking and Evaluation (WHITE) database, and data entered by health authority staff into a BC Centre for Disease Control (BCCDC) web application. WHITE data were used preferentially over the BCCDC web application data.

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This was the first influenza coverage report for which individual level WHITE data were available. To be included in the WHITE data a staff member must have been employed by a health authority and have worked at least once between 1 December 2012 and 30 April 2013. Health authority staff who worked in more than one facility were included in the statistics of the acute care facility where they worked most often. Staff who were not on a health authority's payroll (contracted staff, trainees, etc.) were not included in the WHITE database. Physicians and medical residents were not included in the WHITE database for most facilities. The BCCDC web application data were aggregate data at the facility level, which were collected by health authority staff directly from facilities or using administrative databases (which included health authority's WHITE databases).

Staff were defined as all persons who work or train on a full time, part time or casual basis in a facility or hospital who have direct or indirect contact with patients or residents, regardless of whether they are health care providers. This includes administrative and non-patient care staff (e.g. medical records, housekeeping and dietary) and excludes volunteers. This definition of staff is very inclusive and was outlined in the Ministry's Performance Agreements.

Changes in coverage rates over time should be interpreted with caution as the data collection methods have changed over time. Prior to the 2011/12 influenza coverage report, the number of staff reported for most facilities included staff who did not work during the influenza season (e.g. on long-term disability or leave), which would have underestimated the immunization coverage. Also, staff who worked in more than one facility were usually counted in the denominator of all the facilities in which they worked but only counted in the numerator (as immunized) in the facility where they received their immunization, which would have underestimated the immunization coverage.

The results were re-calculated using the BCCDC web application data as the primary data source to give an indication of how using the individual level WHITE data affected the coverage estimates.

### Results

Reporting of facilities (tables 1 and 2)

- 90/92 (98%) acute care facilities in British Columbia are included in this report
- For 89/90 (99%) facilities, data from the WHITE database were used; for 1/90 (1%) facilities, data entered by health authority staff into the BCCDC web application were used

2012/13 influenza vaccination coverage (tables 3 and 4; figures 1 to 5)

- 74% (35,889/48,818) of staff of acute care facilities in BC were vaccinated against influenza, an increase from 40% coverage in 2011/12
- 71% to 76% was the range across the six health authorities
- 67% to 84% was the range across the sixteen health service delivery areas and PHSA
- 22% to 100% was the range across all ninety acute care facilities in BC
- 54% to 84% was the range across the twenty-eight facilities with 500 or more staff
- 83/90 (92%) facilities met the 60% immunization coverage target, an increase from 8/89 (9%) facilities in 2011/12

## Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

Results using BCCDC web application data as the primary data source (Appendix tables 6A and 7A)

- 68% (37,293/54,744) of staff of acute care facilities in BC were vaccinated against influenza
- 60% to 74% was the range across the six health authorities
- 54% to 84% was the range across the sixteen health service delivery areas and PHSA

### Summary

Influenza immunization coverage data were available for the majority of acute care facilities in all health authorities. The overall influenza vaccination coverage for staff of acute care facilities in BC was 74%, which is above the target of at least 60% coverage. Most facilities met the 60% coverage target.

Within each health authority, there was a wide range of influenza vaccination coverage for acute care facilities. More variation in coverage was observed for smaller facilities (<500 staff). No large facilities (>=500 staff) had over 84% coverage. The reasons behind the variation in vaccination coverage between facilities are not known.

This is the first year that an individual level anonymised WHITE dataset has been used to calculate influenza immunization coverage statistics for acute care facilities in BC. All previous seasons used data from the BCCDC web application. Using the BCCDC web application as the primary data source for the 2012/13 influenza season resulted in a coverage estimate of 68% and a denominator (total number of acute health care staff) that was more similar to the statistics from the 2011/12 influenza season.

The increased influenza immunization coverage observed for the 2012/13 season compared to previous years was likely due to the Influenza Prevention Policy that was implemented in BC prior to the 2012/13 influenza season. While the 74% coverage achieved is 28% higher (absolute) than the coverage in any previous influenza season (2004/05 to 2011/12), substantial room for improvement remains.

### Tables and Figures

Table 1: Acute care facilities included by health authority and for BC, 2012/13

Health region	Acute care facilities		
	Reported	Total	% reported
Interior	27	27	100
Fraser	12	12	100
Vancouver Coastal	12	14	86
Vancouver Island	14	14	100
Northern	18	18	100
Provincial Health Services Authority	7	7	100
British Columbia	90	92	98

The two acute facilities that did not report are within the geographical region covered by Vancouver Coastal Health Authority but are affiliate hospitals that are not owned and operated by the health authority and are not included in the WHITE database.

## Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

Table 2: Data source used to calculate influenza vaccination coverage, 2012/13  
(WHITE data as the 1<sup>st</sup> choice; BCCDC web application data as the second choice)

Health region	Acute care facilities		
	WHITE*	BCCDC*	Total
Interior	27	0	27
Fraser	12	0	12
Vancouver Coastal	12	0	12
Vancouver Island	13	1	14
Northern	18	0	18
Provincial Health Services Authority	7	0	7
British Columbia	89	1	90

\* WHITE: facility influenza immunization coverage statistics were calculated from the Workplace Health Indicator Tracking and Evaluation database.

BCCDC: facility influenza immunization coverage statistics were entered by health authority staff into an online database or emailed directly to the BCCDC in a spreadsheet.

Table 3: Influenza vaccination coverage for staff of acute care facilities by health authority, health service delivery area and for BC, 2012/13  
(WHITE data as the 1<sup>st</sup> choice; BCCDC web application data as the second choice)

Health region	Acute care facility staff		
	Immunized	Total	(%)
<b>Interior</b>	<b>6540</b>	<b>8593</b>	<b>(76)</b>
East Kootenay	684	812	(84)
Kootenay Boundary	706	995	(71)
Okanagan	3323	4593	(72)
Thompson/Cariboo/Shuswap	1827	2193	(83)
<b>Fraser</b>	<b>11013</b>	<b>14883</b>	<b>(74)</b>
Fraser East	2053	2781	(74)
Fraser North	4390	5825	(75)
Fraser South	4570	6277	(73)
<b>Vancouver Coastal</b>	<b>5553</b>	<b>7828</b>	<b>(71)</b>
Richmond	792	993	(80)
Vancouver	3364	4996	(67)
N Shore/Coast Garibaldi	1397	1839	(76)
<b>Vancouver Island</b>	<b>6143</b>	<b>8345</b>	<b>(74)</b>
South Vancouver Island	3975	5295	(75)
Central Vancouver Island	1673	2401	(70)
North Vancouver Island	495	649	(76)
<b>Northern</b>	<b>2612</b>	<b>3459</b>	<b>(76)</b>
Northwest	673	909	(74)
Northern Interior	1473	1908	(77)
Northeast	466	642	(73)
<b>PHSA</b>	<b>4038</b>	<b>5710</b>	<b>(71)</b>
<b>BC</b>	<b>35899</b>	<b>48818</b>	<b>(74)</b>

### Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

Table 4: Acute care facility staff influenza vaccination coverage by health authority and for BC, 2004/05 to 2012/13 influenza seasons

Health region	Influenza immunization coverage (%) for staff of acute care facilities by influenza season									
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2009/10 H1N1	2010/11	2011/12	2012/13
Interior	48	56	53	53	51	45	52	44	44	76
Fraser	33	42	40	40	33	16	46	30	34	74
Vancouver Coastal	39	45	46	39	45	47	53	46	43	71
Vancouver Island	51	45	45	42	41	37	42	39	42	74
Northern	53	47	40	45	43	37	41	42	37	76
PHSA	-*	45	45	44	40	32	36	46	43	71
British Columbia	41	46	45	43	42	35	46	40	40	74

\* In 2004/05 PHSA facilities were included in health authority statistics

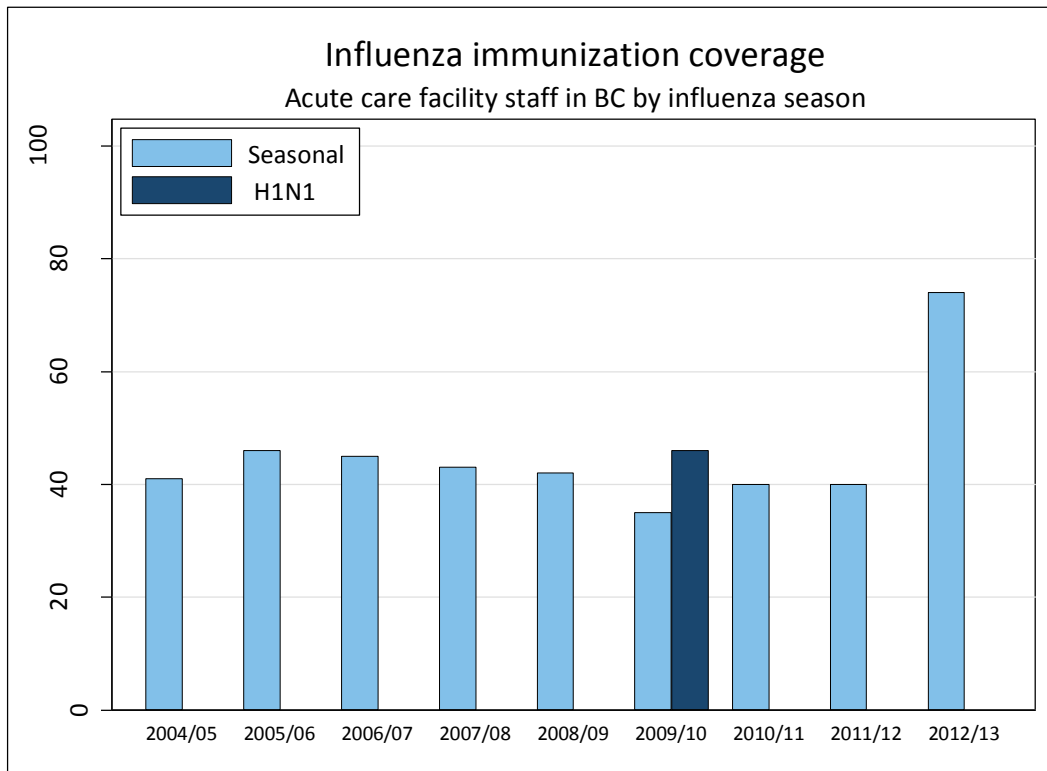


Figure 1: Influenza immunization coverage for staff of acute care facilities, British Columbia from 2004/05 to 2012/13

## Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

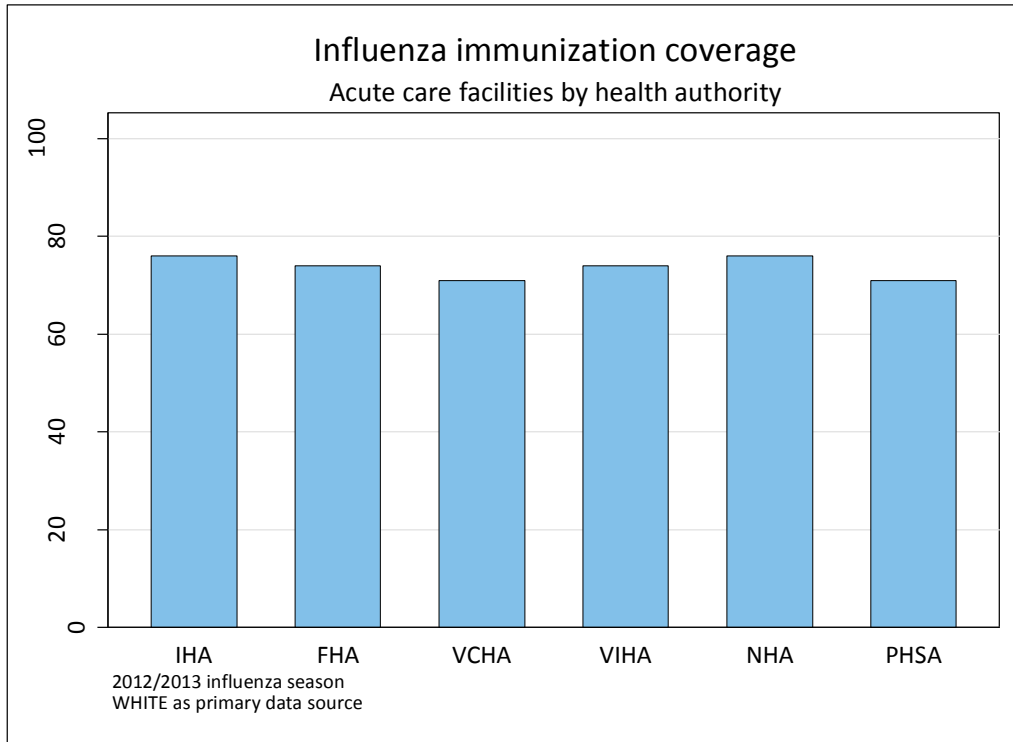


Figure 2: Influenza immunization coverage for staff of acute care facilities by health authority, 2012/13

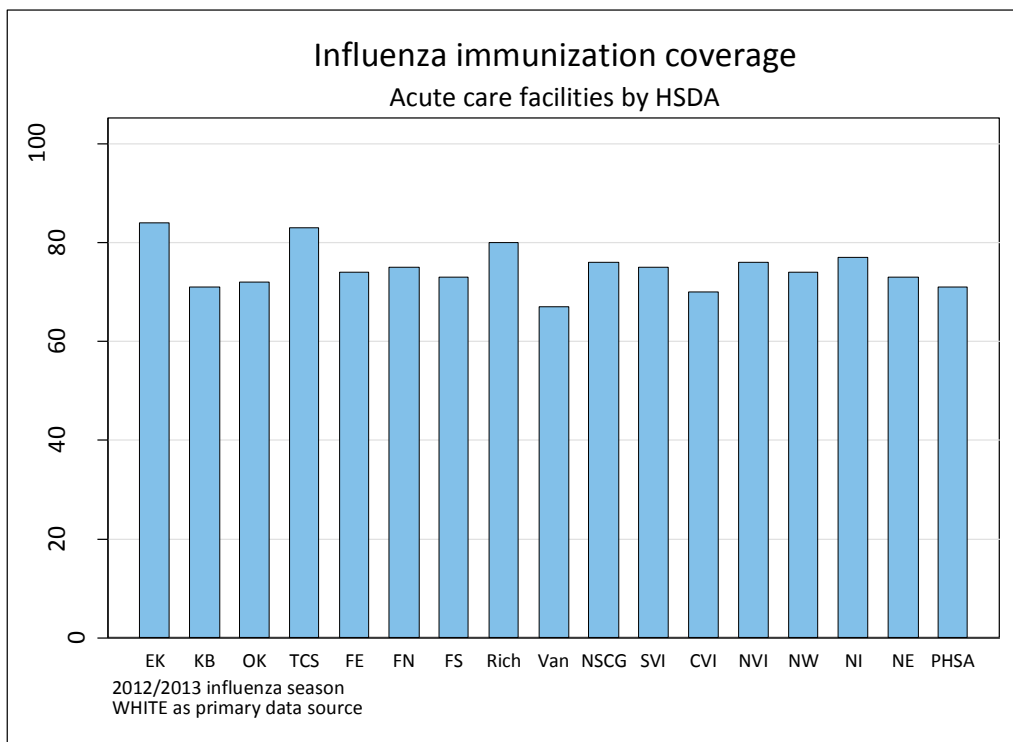


Figure 3: Influenza immunization coverage for staff of acute care facilities by health service delivery area and for PHSA, 2012/13

**Influenza vaccination coverage for staff of acute care facilities**  
**British Columbia, 2012/13**

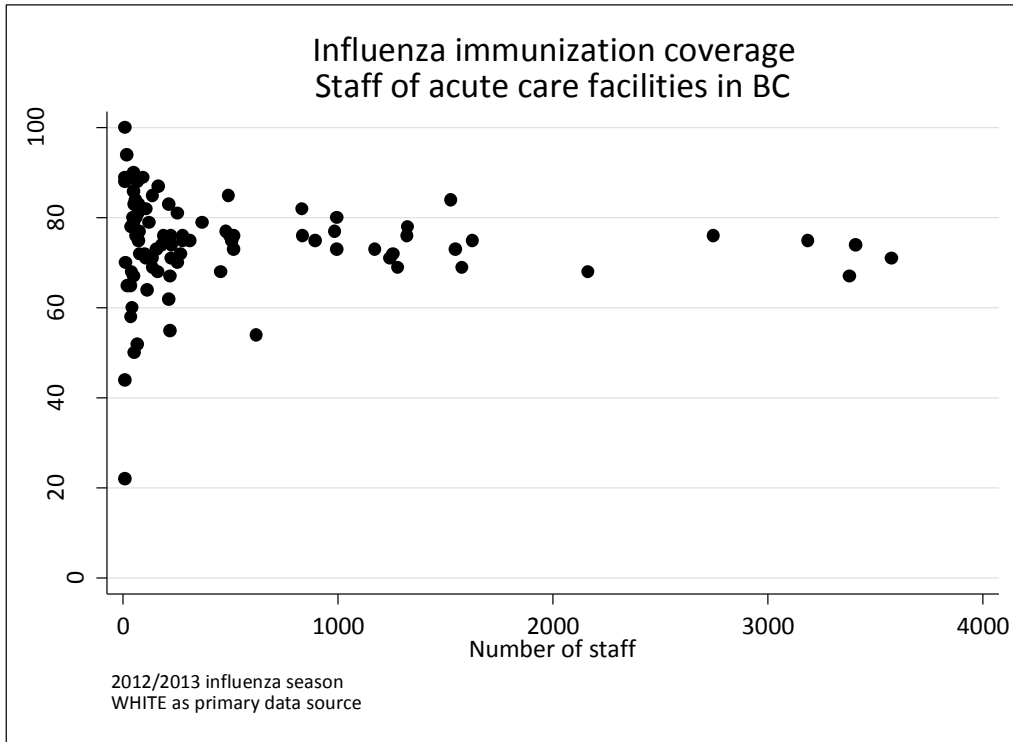


Figure 4: Influenza immunization coverage for staff of acute care facilities by facility size, British Columbia 2012/13

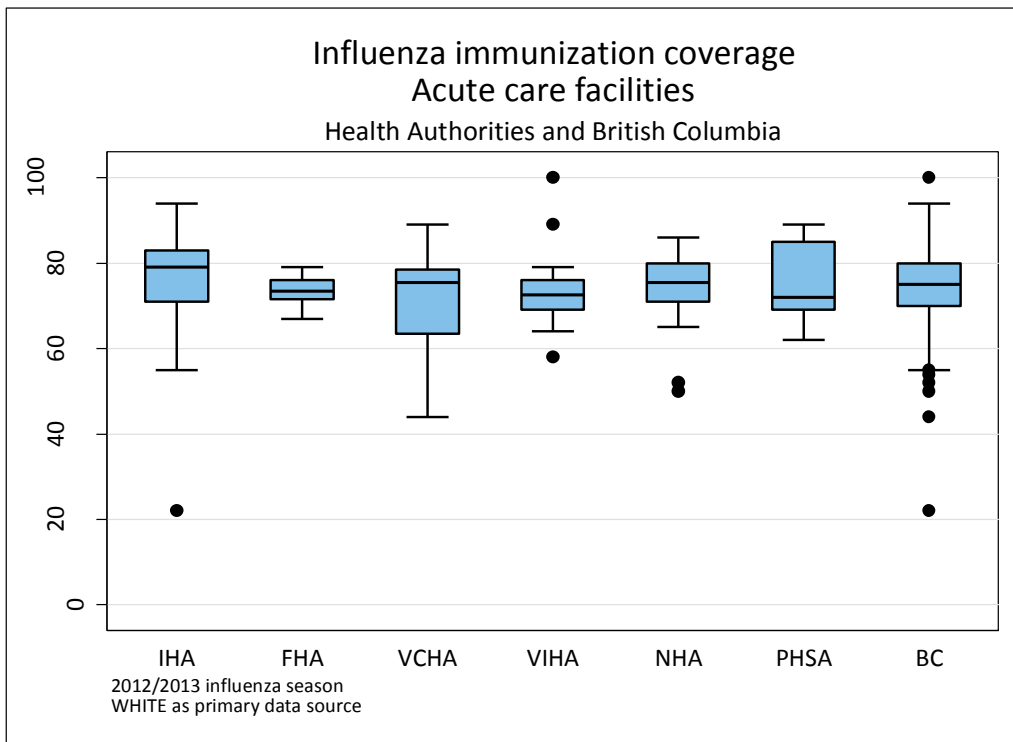


Figure 5: Variation in influenza immunization coverage for staff of acute care facilities by health authority and for British Columbia, 2012/13

## **Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13**

Figure 5 illustrates the range of influenza immunization coverage for acute care facilities in each health authority and for BC for the 2012/13 influenza season. The horizontal line below each box represents the lowest observed coverage value (within the expected range); the lower edge of each box represents the 25<sup>th</sup> percentile; the solid horizontal line within each box represent the median coverage value; the upper edge of each box represents the 75<sup>th</sup> percentile; the horizontal line above each box represents the highest observed coverage value (within the expected range); and the dots represent facilities with unusually high or low coverage values which may be outliers.



## Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

### Appendix

Table 5A: Immunization coverage for staff of acute care facilities by health authority, health service delivery area, and British Columbia, 2004/05 to 2012/13

Health region		Influenza season									
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2009/10 H1N1	2010/11	2011/12	2012/13
<b>INTERIOR</b>	immunized	5156	5439	5136	5083	5192	4610	5317	4490	4558	6540
	total staff	10722	9751	9602	9545	10213	10249	10307	10132	10473	8593
	(% immunized)	(48)	(56)	(53)	(53)	(51)	(45)	(52)	(44)	(44)	(76)
East Kootenay	immunized	626	651	568	597	656	547	620	560	540	684
	total staff	1232	996	1082	858	1067	1038	999	1033	1031	812
	(% immunized)	(51)	(65)	(52)	(70)	(61)	(53)	(62)	(54)	(52)	(84)
Kootenay Boundary	immunized	681	653	616	592	605	504	497	422	381	706
	total staff	1367	1315	1296	1280	1350	1382	1382	1324	1306	995
	(% immunized)	(50)	(50)	(48)	(46)	(45)	(36)	(36)	(32)	(29)	(71)
Okanagan	immunized	2023	2275	2371	2140	2074	1972	2376	1793	2156	3323
	total staff	5016	4567	4371	4539	4631	4652	4600	4635	5412	4593
	(% immunized)	(40)	(50)	(54)	(47)	(45)	(42)	(52)	(39)	(40)	(72)
Thomps Carib Shuswap	immunized	1826	1860	1581	1754	1857	1587	1824	1715	1481	1827
	total staff	3107	2873	2853	2868	3165	3177	3326	3140	2724	2193
	(% immunized)	(59)	(65)	(55)	(61)	(59)	(50)	(55)	(55)	(54)	(83)
<b>FRASER</b>	immunized	4,793	7,437	7,302	7,748	5,031	2,586	7,371	5,173	5,446	11,013
	total staff	14,745	17,602	18,037	19,180	15,154	15,867	15,867	16,984	15,881	14,883
	(% immunized)	(33)	(42)	(40)	(40)	(33)	(16)	(46)	(30)	(34)	(74)
Fraser East	immunized	873	1,443	1,354	1,619	912	520	1,318	1,033	1,219	2053
	total staff	2,594	3,385	3,395	3,841	2,759	2,860	2,860	3,119	3,115	2,781
	(% immunized)	(34)	(43)	(40)	(42)	(33)	(18)	(46)	(33)	(39)	(74)
Fraser North	immunized	1,917	3,015	3,008	3,051	2,221	1,158	3301	2289	2110	4,390
	total staff	6,239	6,943	7,181	7,405	6,496	6,612	6612	7003	6228	5,825
	(% immunized)	(31)	(43)	(42)	(41)	(34)	(18)	(50)	(33)	(34)	(75)
Fraser South	immunized	2,003	2,979	2,940	3,078	1,898	908	2,752	1,851	2,117	4,570
	total staff	5,912	7,274	7,461	7,934	5,899	6,395	6,395	6,862	6,538	6,277
	(% immunized)	(34)	(41)	(39)	(39)	(32)	(14)	(43)	(27)	(32)	(73)

### Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

Table 5A (continued): Immunization coverage for staff of acute care facilities by health authority, health service delivery area, and British Columbia, 2004/05 to 2012/13

		Influenza season									
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2009/10 H1N1	2010/11	2011/12	2012/13
<b>Health region</b>											
<b>VANCOUVER COASTAL</b>	immunized	7037	6981	8160	6236	7152	6841	7639	5644	5541	5553
	total staff	18009	15359	17743	15991	15975	14506	14506	12173	12897	7828
	(% immunized)	(39)	(45)	(46)	(39)	(45)	(47)	(53)	(46)	(43)	(71)
Richmond	immunized	466	462	522	496	648	634	716	516	520	792
	total staff	1052	1247	1294	1221	1414	1265	1265	1016	1085	993
	(% immunized)	(44)	(37)	(40)	(41)	(46)	(50)	(57)	(51)	(48)	(80)
Vancouver	immunized	5371	5986	6466	4619	5082	5145	5565	4193	4219	3364
	total staff	14395	13178	13596	12037	11540	10600	10600	9026	9805	4996
	(% immunized)	(37)	(45)	(48)	(38)	(44)	(49)	(53)	(46)	(43)	(67)
N Shore/Coast Garibaldi	immunized	1200	533	1172	1121	1422	1062	1358	935	802	1397
	total staff	2562	934	2853	2733	3021	2641	2641	2131	2007	1839
	(% immunized)	(47)	(57)	(41)	(41)	(47)	(40)	(51)	(44)	(40)	(76)
<b>VANCOUVER ISLAND</b>	immunized	1447	4032	3974	3856	4075	3727	3881	3941	3844	6143
	total staff	2831	8977	8782	9113	9981	10175	9183	10021	9166	8345
	(% immunized)	(51)	(45)	(45)	(42)	(41)	(37)	(42)	(39)	(42)	(74)
South Van Island	immunized	70	2189	2041	2110	2130	1987	2389	2035	1944	3975
	total staff	120	5299	4981	5028	5476	5540	5540	5405	4860	5295
	(% immunized)	(58)	(41)	(41)	(42)	(39)	(36)	(43)	(38)	(40)	(75)
Central Van Island	immunized	877	1150	1064	1078	1173	982	1163	1184	1139	1673
	total staff	1960	2350	2352	2546	2843	2932	2932	2982	2766	2401
	(% immunized)	(45)	(49)	(45)	(42)	(41)	(33)	(40)	(40)	(41)	(70)
North Van Island	immunized	500	693	869	668	772	758	329	722	761	495
	total staff	751	1328	1449	1539	1662	1703	711	1634	1540	649
	(% immunized)	(67)	(52)	(60)	(43)	(46)	(45)	(46)	(44)	(49)	(76)

### Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

Table 5A (continued): Immunization coverage for staff of acute care facilities by health authority, health service delivery area, and British Columbia, 2004/05 to 2012/13

		Influenza season									
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2009/10 H1N1	2010/11	2011/12	2012/13
<b>Health region</b>											
<b>NORTHERN</b>	immunized	1,905	2,066	1,950	2,018	1,972	1,558	1737	1832	1623	2612
	total staff	3,616	4,414	4,845	4,477	4,630	4,251	4260	4396	4354	3459
	(% immunized)	(53)	(47)	(40)	(45)	(43)	(37)	(41)	(42)	(37)	(76)
Northwest	immunized	554	638	555	525	486	372	478	498	548	673
	total staff	976	1,256	1,146	1,219	1,228	1,100	1108	1094	1121	909
	(% immunized)	(57)	(51)	(48)	(43)	(40)	(34)	(43)	(46)	(49)	(74)
Northern Interior	immunized	1,025	1,053	1,021	1,110	1,105	875	966	997	785	1473
	total staff	2,179	2,338	2,790	2,499	2,625	2,444	2445	2565	2467	1908
	(% immunized)	(47)	(45)	(37)	(44)	(42)	(36)	(40)	(39)	(32)	(77)
Northeast	immunized	326	375	374	383	381	311	293	337	290	466
	total staff	461	820	909	759	777	707	707	737	766	642
	(% immunized)	(71)	(46)	(41)	(50)	(49)	(44)	(41)	(46)	(38)	(73)
<b>PHSA</b>	immunized	*	4049	3269	3353	2785	2753	3093	2015	2363	4038
	total staff	*	8954	7307	7556	7037	8536	8536	4389	5441	5710
	(% immunized)	*	(45)	(45)	(44)	(40)	(32)	(36)	(46)	(43)	(71)
<b>BC</b>	immunized	20,338	30,004	29,791	28,294	26,207	22,075	29,038	23,095	23,375	35899
	total staff	49,923	65,057	66,316	65,862	62,990	63,584	62,659	58,095	58,212	48818
	(% immunized)	(41)	(46)	(45)	(43)	(42)	(35)	(46)	(40)	(40)	(74)

\* In 2004/05 PHSA facilities were included in health authority statistics

## Influenza vaccination coverage for staff of acute care facilities British Columbia, 2012/13

**Coverage statistics using BCCDC influenza immunization coverage web application data as the primary data source and WHITE data as the second choice**

Table 6A: Data source used to calculate influenza vaccination coverage, 2012/13

Health region	Acute care facilities		
	BCCDC*	WHITE*	Total
Interior	15	12	27
Fraser	0	12	12
Vancouver Coastal	9	3	12
Vancouver Island	14	0	14
Northern	18	0	18
Provincial Health Services Authority	0	7	7
British Columbia	56	34	90

\* BCCDC: facility influenza immunization coverage statistics were entered by health authority staff into an online database or emailed directly to the BCCDC in a spreadsheet.

WHITE: facility influenza immunization coverage statistics were calculated from the Workplace Health Indicator Tracking and Evaluation database.

Table 7A: Influenza vaccination coverage for staff of acute care facilities by health authority, health service delivery area and for BC, 2012/13 (BCCDC web application data as the 1<sup>st</sup> choice; WHITE data as the second choice)

Health region	Acute care facility staff		
	Immunized	Total	(%)
<b>Interior</b>	<b>6803</b>	<b>11289</b>	<b>(60)</b>
East Kootenay	684	812	(84)
Kootenay Boundary	706	995	(71)
Okanagan	3503	6450	(54)
Thompson/Cariboo/Shuswap	1910	3032	(63)
<b>Fraser</b>	<b>11013</b>	<b>14883</b>	<b>(74)</b>
Fraser East	2053	2781	(74)
Fraser North	4390	5825	(75)
Fraser South	4570	6277	(73)
<b>Vancouver Coastal</b>	<b>7837</b>	<b>11671</b>	<b>(67)</b>
Richmond	700	1032	(68)
Vancouver	5933	8791	(67)
N Shore/Coast Garibaldi	1204	1848	(65)
<b>Vancouver Island</b>	<b>4874</b>	<b>7237</b>	<b>(67)</b>
South Vancouver Island	2469	3682	(67)
Central Vancouver Island	1249	2076	(60)
North Vancouver Island	1156	1479	(78)
<b>Northern</b>	<b>2728</b>	<b>3954</b>	<b>(69)</b>
Northwest	663	941	(70)
Northern Interior	1579	2311	(68)
Northeast	486	702	(69)
<b>PHSA</b>	<b>4038</b>	<b>5710</b>	<b>(71)</b>
<b>BC</b>	<b>37293</b>	<b>54744</b>	<b>(68)</b>